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largest in 12 years; the supply of fibers for industrial manufacture is close upon the largest on record. For this the farmers will receive about a billion dollars less in cash farm income this year than last.

The Bureau estimates the 1938 cash farm income at more than $7,500,000,000. This may be compared with $8,600,000,000 in 1937, with $7,944,000,000 in 1936, and with $4,328,000,000 at the bottom of the economic depression in 1932. The decline in farm income this year follows 5 successive years in which farmers' cash income had increased over the preceding year.

The reduction in 1938 farm income is attributed largely to the marked decline in industrial activity during the past year and to the lower level of income of urban consumers. Prices of farm products were forced down to lowest figures in several years but corresponding reductions were not made in prices of commodities farmers buy. In late summer, the buying power of farm products was 75 percent of pre-war.

Prices of farm products began the sharp decline in the fall of 1937. But despite this decline, farmers in 1938 maintained their production plant at about 1937 levels, and close to the average of the preceding 10 years. While factory employment was cut 25 percent, farmers employed about the same number of workers and paid only slightly lower wages. There was a decrease in the area planted to cotton, but this reduction was more than offset by a large net increase in acreage of food and feed crops.

Other elements in the fiscal position of agriculture during the year included a slight decrease in farm-mortgage debt and an increase in farm taxes. Available information indicates that the costs of farm production decreased much less than the decline in farm income. (The Bureau is now working on statistical series dealing with annual expenditures by farmers for commodities and services used on the farm and in the farm home.) There was probably no gain in farm real estate values.

MORTGAGE DEBT

For several years the farm-mortgage debt has been declining, sharply from 1930–35 through liquidation of debt by foreclosures and related transfers, less sharply after 1935 when voluntary repayments increased. For the last date of record, January 1, 1938, the farm-mortgage debt stood at about $7,082,000,000. The 1938 figure represents a decrease of more than $2,000,000,000 since 1930 when the debt totaled about $9,200,000,000. The mortgage debt in 1935 was about $7,650,000,000. About 64 percent of the 1935 debt was on owner-operated farms. Presumably about the same proportion exists now.

A survey revealed that the Federal land banks and the Land Bank Commissioner held almost 40 percent of all farm-mortgage indebtedness at the beginning of 1937, as compared with about one-third of the total at the beginning of 1935 and only slightly more than one-eighth held by the Federal land banks in 1930. Life insurance companies in 1937 held less than one-half the volume of farm-mortgage loans held by them in 1930. The total for 1937 was 12.9 percent of all farm-mortgage debt as compared with 22.9 percent of the much larger total in 1930.

The Bureau continued its analysis of data from the Nation-wide Works Progress Administration survey of farm mortgages and farm transfers. Separate reports were released for 20 States showing the percentage distribution of newly recorded mortgages by lender groups annually, 1917–35, and the average interest rate and consideration on these mortgage loans. These State reports afford a detailed factual background for an analysis of mortgage-credit trends. Noteworthy is the reduction since 1930 in average interest rates on newly recorded mortgages, for the federally sponsored agencies and for most of the private lender groups.

There is much interest in the farm real estate holdings of leading lending agencies in knowing how much farm land these agencies have acquired in recent years. A study as of January 1, 1937, revealed that the leading lending agencies held about 28,000,000 acres of farm land in which they had an estimated investment of almost $1,000,000,000. This compared with $150,000,000 in 1929. The additional lands had been acquired primarily through foreclosures and other distress transfers.

COMMERCIAL LOANS INCREASED

Bureau surveys revealed an increase in both personal and collateral loans by commercial banks to farmers in 1937, but that during the latter half of the year there was a nominal decrease in loans secured by farm real estate. At the end of 1937 the agricultural loans of commercial banks totaled $1,289,801,000, an increase of 19 percent as compared with the end of 1936. Short-term agricultural loans of the federally sponsored credit agencies also increased substantially in 1937, the total at the end of the year being $192,480,000, representing an increase of 13 percent.

A study was completed of short-term credit supplied by country banks in Wisconsin in relation to the credit needs of Wisconsin farmers, during the period 1929–35, and a similar study was begun in Utah. The objective is to ascertain the changes in management policies which would have enabled the banks to serve the legitimate credit requirements of borrowers while meeting heavy demands from depositors.

A technique was developed by which country banks may determine approximately the total volume and types of securities they should hold in order to assure that they will be able, in case of an unfavorable turn in economic conditions, to meet withdrawals of deposits and at the same time render a satisfactory credit service to borrowers without help from other financial institutions. This technique involves a measurement of the risks of price depreciation inherent in various classes of securities and of the liquidation and losses that might reasonably be expected from various classes of local loans in case conditions became acutely depressed.

THE TAX PROBLEM

New taxes affecting farmers have become numerous in recent years, and new viewpoints, or added attention to views widely opposed in the past, have been increasingly in evidence. There is increasing need for study of newer forms of taxation, and for logical analysis of devices to modify the indirect effects of taxation, such as the

distribution of the tax burden, to make taxation more fully cooperative with other efforts to reach currently developing social objectives. The Bureau's farm real estate tax series are being kept up to date, and by the end of 1938 will have been extended back to 1890, by States. A slight upward trend in taxes per acre continued from 1934 through 1937. Its continuance for 1938 is suggested by advance data.

An important function of the Bureau has been the administration of the Bankhead-Black Act, passed in 1936, which authorizes the Farm Security Administration to make payments to local taxing units in lieu of taxes on real property included in resettlement projects of that agency. Up to June 30, 1938, 1,200 agreements for payments in lieu of taxes had been drawn up with 1,150 local taxing units, including States, counties, and school districts. Because of the growing importance of such payments, the Bureau has cooperated with other branches of the Department in an attempt to work out a uniform policy to govern relationships with local taxing units.

Research on such subjects as tax-collection procedure and assessment policies brought to light many opportunities for improvement in State legislation on this general topic.

EXPORTS UP, IMPORTS DOWN

The fiscal year brought a striking change in the agricultural export-import situation. Agricultural exports increased 158 million dollars or 22 percent over exports in the preceding fiscal year. The volume of exports was the largest since 1933–34. Imports of competitive agricultural products declined 279 million dollars or 32 percent compared with 1936–37.

This marked change in the foreign trade situation is accounted for primarily by (1) the more abundant crops of 1937 following years of drought and low production and (2) the less favorable economic situation in the United States which caused a marked decline in imports of certain products, such as wool, ordinarily imported in substantial quantities.

From the longer-time point of view the principal positive factor looking toward larger foreign outlets for our agricultural surpluses is the reciprocal trade-agreements program. The agreements, negotiated by the Department of State, recognize in a practical way the necessity of two-way trade—that we must buy if we are to sell. Negotiations looking toward an agreement with the United Kingdom have been in progress since April 1938. The United Kingdom alone accounts for more than one-third of the total agricultural exports of the United States. Negotiations were begun on a new trade agreement with Canada, and an agreement with Czechoslovakia was put into effect. Trade agreements are now in effect with 17 countries which normally constitute a market for more than one-fourth of our agricultural export trade. The Bureau collaborated closely with the interdepartmental committees established to carry out the trade-agreements program.

FOREIGN RESEARCH

A number of research studies concerning matters having a direct or indirect effect on the position of American agriculture in world markets were completed and published, notably studies of the ex-

panded cotton textile industries of China, Japan, and India. These studies showed conclusively that the rise of modern textile industries in the Orient has led to a net loss in the oriental market for American cotton. The increase in imports of American raw cotton, particularly by Japan, has been outweighed by the substantial loss in China and India of markets for American cotton in the form of goods.

A report was issued entitled "The Tariff on Long Staple Cotton and Its Effect," additional work was done on an analysis of the effects of our tariff policy on the cotton farmers, (this study should be useful to the cotton farmers in attempting to strike a balance between profits and the burdens of a high protective tariff policy), and some analysis was made of tariff rates and the cost of the tariff on representative articles bought by farmers.

An intensive field investigation of hog and pork industries, including first-hand surveys of hog production and marketing, was made in practically all of the European hog-producing countries. It indicates that, given an opportunity to compete on an equal basis with other exporting countries, the United States could maintain substantial European outlets for American ham and lard.

A study of foreign trade of the United States in meats and livestock revealed that the downward trend in exports of meats and livestock in the last 30 years has been the result of an expansion in demand in this country as well as a decline in foreign demand for these products.

A study of the British market for American tobacco showed that, owing to tariff preference, Empire leaf is supplying a greater proportion of the British demand for tobacco, although an increase in total consumption in the United Kingdom has made it possible for the United States to continue a high volume of tobacco exports to that country.

AGRICULTURAL SURVEYS

Two new series of research investigations were begun in individual countries: (1) Studies of important agricultural industries, and (2) general agricultural surveys. The first type of study is illustrated by reports published on Argentine corn and Argentine wheat. The purpose of such reports is to discover the basic factors affecting the production of the more important agricultural staples in foreign countries with particular reference to the competition they now offer or are likely to offer to American agriculture in world markets.

The second type of study is illustrated by a report on agriculture in Peru, which is a more general discussion of developments and trends with particular reference to those branches which are of especial interest from the point of view of competition with American agriculture. Similar studies are under way in Argentina, China, the Union of Soviet Socialist Republics, and countries of the Danube Basin.

Other foreign-research studies included such subjects as farm tenancy in Ireland, farm labor and social legislation in England, crop insurance in the Soviet Union, and a general review of Swedish agricultural policy. Government policies affecting agriculture in 13 foreign countries were reviewed with particular reference to developments in 1937.

The results of investigations and research on foreign production and foreign markets are made available in many ways to American farmers—in printed and mimeographed bulletins, weekly and monthly publications, daily newspapers and radio releases, and by personal contact with large groups of farmers. Talks are given at large meetings in various parts of the country by the Bureau's foreign investigators recently returned from abroad. There was a series of talks on world cotton production and markets to inform American producers as to trends in foreign competition, and to show them how American cotton-marketing methods may be improved to increase the competitive position of American cotton. Similarly, fruit producers and exporters are kept informed as to foreign market developments and the practical ways of expanding foreign trade.

In response to increasing demands for information on the agricultural import-export trade of the United States, the Bureau has virtually completed a new index of the volume of agricultural imports and a revision of the index of agricultural exports. These indexes should be useful in providing a clear-cut picture of the shifts and trends in our agricultural foreign trade.

LOOKING AHEAD

Surveys and analyses by the Bureau suggest some improvement this fall and winter in the demand for farm products, but that farmers will go into the 1939 season faced by excessive supplies of wheat, corn, and cotton. Factories confronted by a similar situation as to stocks of manufactured goods invariably curtail production. They did so in the fall and winter of 1937. Factories went on part-time production schedules.

Farmers in the fall of 1937 were planning their 1938 production, as they are now planning for 1939. In the fall of 1937, the Bureau held its seventeenth annual outlook conference of State and Federal economists and other specialists, studied the situation and prospects covering more than a hundred different agricultural products, made known the essential facts to farmers through the many ways developed by the Bureau and the Extension Service for the spread of agricultural economic information.

Wheat growers were informed of the prospects for lower prices in view of the likelihood of a burdensome supply situation, cotton growers were cautioned against excessive plantings, corn growers were informed that the supply of feed per farm animal was the largest in more than 10 years. The supply-and-demand situation and the outlook for all other agricultural industries were similarly analyzed and made known to farmers.

Monthly and special situation and outlook reports were issued during the planning season, discussing latest developments in domestic and foreign supply and demand conditions. Surveys were made as to the planting and breeding intentions of farmers, these preliminary plans for 1938 production were studied and analyzed in relation to all the basic supply and demand factors, and the conclusions made known to farmers by press and radio direct and through the agencies of the agricultural extension services.

Simultaneously, the facts as to prospective acreages and production in 1938, as to the surplus of products from the 1937 crops, as to the

prospective domestic and foreign demand for products in 1938, and as to the continuing need for readjustments in agricultural production as a whole and in its component parts were the subjects of agricultural planning conferences among economists and other specialists of the Bureau and the Agricultural Adjustment Administration. The Bureau was supplying the basic facts and analyses for use in organizing adjustment programs for 1938.

CROP INSURANCE

The Agricultural Adjustment Act of 1938 authorized the creation of the Federal Crop Insurance Corporation to insure wheat growers against losses in yields and to investigate the practicability of extending similar insurance plans to producers of other farm products. The crop insurance program was the culmination of years of basic research in this field by the Bureau.

The Bureau completed the compilation of premium rates and practical limits of insurance coverage per acre for wheat-crop insurance in more than 1,700 wheat-producing counties in 36 States. Premium rates were prepared for two coverages, one for 75 percent of the average yield and another for 50 percent of the average yield on insured farms.

It is believed that the premium-rate system which has been devised fits the rate closely to the individual farm risk, that it will enable farmers having low risks to obtain insurance without paying excessive costs, and that it will not encourage farmers having high risks to continue production where on the average such production is below subsistence levels.

A uniform technique was worked out for compilation of actuarial data for all types of wheat and in all wheat-producing areas. This became possible after special investigations were made (1) to ascertain the varying influences of soils, farming practices, and climatological factors on the yields of wheat, and (2) to determine what modifications, if any, were necessary for insurance on wheat produced on irrigated land and on land seeded to wheat following summer fallow.

Research work on crop insurance for cotton and corn was resumed and a study of the problems peculiar to crop insurance for certain fruits and vegetables was started. Upon the acquisition early in the coming year of cotton-yield data for the years 1933–37, the cotton study will progress rapidly. Work on corn and certain of the commercially important fruits awaits principally the gathering of additional data and the development of a definite plan of attack.

Following the enactment of the Federal Crop Insurance Act, the actuarial data for wheat-crop insurance were tested and checked extensively and turned over to the Federal Crop Insurance Corporation.

TEN MILLION SUBMARGINAL ACRES

Following passage of the Bankhead-Jones Act in 1937, the Bureau was charged with the responsibility for administering title III of that act providing for a program of land conservation and land utilization. On September 1, 1937, administrative supervision was assigned to the Bureau over the 131 projects involving 8,142,666 acres, in the land-utilization program previously carried out under the Resettle-

ment Administration. Subsequently, additional land purchases were authorized in 106 projects established by the Bureau under title III of the Bankhead-Jones Act. Land acquisition was in progress on 95 projects, both old and new, and authorization to begin acquisition was in process of being obtained for four others on June 30, 1938. Appraisal of 1,906,354 acres in projects authorized during the year was completed, options were obtained on 555,518 acres, and options were accepted on 132,502 acres. The purchase value of the land on which options were accepted was $677,307. Title-clearance work on the "old" (former Resettlement Administration) program including land-use and resettlement-type projects included delivery of checks amounting to $17,827,701 in payment for 2,645,394 acres, bringing the total amount of land paid for under the old program to 7,815,194 acres.

Three major types of projects are included in the land utilization program: Agricultural adjustment projects, isolated settler projects, and water conservation projects. Designed to convert wasted, misused land to uses that will rebuild natural and human resources into permanent national assets, the agricultural adjustment projects aim at establishment of a sound rural economy based on agricultural use of the land. Isolated settler projects are undertaken with the objective of enabling widely dispersed farm families, in nonagricultural areas, to relocate; thereby at once enabling local and State governments to reduce costs of public services to these citizens, and providing a means for economically more desirable use of the land. The third group of projects, those devoted to water conservation, are of special prominence in arid and semiarid regions where full and thrifty development of water resources is the dominant factor in establishing an economically healthy system of using the land.

LAND DEVELOPMENT

Land improvement and development, required in order that full use may be made of natural potentialities of the land acquired, included many types of work to meet problems peculiar to each project area. Broadly speaking, these developments included general land treatment, structural improvements, betterment of transportation facilities, control of erosion, flood control and water storage, forestry, recreation, and wildlife. In these activities, $17,310,548 was spent, of which $7,185,135, or 41.5 percent, was for labor.

Improvements on submarginal land included the building of approximately 8,000 acres of public camping and picnic grounds, and 347,892 check dams (to stop soil erosion); the seeding of 60,542 acres of land to grass; planting of 121,786 acres to trees; the construction of 396 miles of fences (to facilitate management); the improvement of 582,923 acres of forests; the building of 4,043 miles of highways, roads, and truck trails, and the erection of 981 structures, including houses, barns, sheds, administrative buildings, and recreation shelters. In its water-conservation work on land use projects, the Bureau had by June 30, constructed 1,410 dams, of which 93 are classed as major impounding dams, the remainder being largely stock reservoirs on the Great Plains range projects.

Development work was performed on 93 projects, covering 6,667,169 acres, with average monthly employment approximating 18,000

workers. Virtually all of the development work was accomplished with relief labor from the vicinity of each project, furnished by the Works Progress Administration. In most cases, the workmen had to be trained as they worked in such crafts as stonemasonry, carpentry, operation of heavy equipment, and numerous others. As these men acquired skills, many were able to find positions in private employment.

NEW USES FOR LAND

Increasing emphasis was placed on the management of project areas as development progressed to the point where they were ready for new uses. An example of this management work, and the ultimate adjustments to be achieved in the agricultural projects in this program, is a sample area in Wyoming. In a 100,000-acre area, where farm poverty, depletion of soil and grass resources, need for relief, and tax delinquency were becoming widespread, 41,279 acres of small farm units, abandoned homesteads, and other lands were acquired. To help convert the land to range use, fencing and increased water facilities were developed and considerable areas reseeded to grass. The number of operating units was decreased from 54 to 25, and the use of the land organized so that all remaining operators who wished to cooperate in the program now have sufficiently large operating units for successful management as stock ranches. These operators, moreover, have now become eligible for rehabilitation loans and commercial credit and none are on relief rolls.

Representatives of the Bureau (or preceding agencies) assisted local operators in forming a cooperative grazing association which now leases the Bureau's land along with other tracts not directly controlled by local operators. By virtue of the management plan worked out by the Bureau in cooperation with this local grazing association, all land is being used in such a way as to protect the soil and grass resources, build up the carrying capacity of the range, and yet enable each operator to get the greatest return from the land consistent with these policies. Similar programs are being put into effect in all but a few of the 18 projects covering 3,928,612 acres being managed by the Bureau.

Many of the projects included in the old program were best adapted to administration by other agencies of the Government. Therefore, 45 projects or parts of projects, including 1,749,327 acres, were transferred during the fiscal year to other Federal agencies. Of the remaining projects, on that date 25 projects, including 597,909 acres, in whole or in part, were scheduled for such transfer. Since a major objective in the land utilization program has been to obtain the widest possible local participation by individuals, State agencies, and political subdivisions, cooperative arrangements have been or are being made with State agencies for transferring to them the administration of land in a number of projects. Prior to June 30, 1938, one project had been transferred, while temporary management agreements had been made for 14 projects. The projects have been developed in close cooperation with State agencies, usually those with which negotiations are being conducted looking to permanent administration.

COOPERATIVE LAND DEVELOPMENT

Of special interest has been the development of the cooperative phase of the program, insofar as it assists in development of local organizations or units dedicated to sound permanent management of the land. Many projects have afforded the basis for cooperative grazing associations, development of community pastures, or other devices directed to this end. In its effect on individuals, the opportunity the program has afforded many families of relocation on better soil should not be overlooked.

On the more than 8,700,000 acres in the original program, of which 94 percent was transferred to the Bureau, 12,865 families were living. Of that number, 217 were shifted to better farms within project areas while 9,303 moved outside the project areas. Some of the latter-named group were given financial aid. The relocation of families, primarily concerned with the removal of submarginal land from cultivation, is also designed to encourage the shifting of families to lands more suitable for cultivation. Definite plans had been made for relocation of most of the remaining families, either through their own efforts or with the small loans or guidance from other Federal agencies.

Much information was assembled for various programs of Federal and State agencies. The Bureau advised with the States in regard to such measures as rural zoning, cooperative grazing organization, and improved tax laws, that can be used to direct the use of their land resources. In Michigan, for example, State authorities were given advice on policies to be followed in getting the new State rural-zoning program into action. In Tennessee and West Virginia, special surveys of land problems were made with a view to determining the possibility of applying rural zoning ordinances to their solution.

In almost every one of the land utilization projects located in the Great Plains, cooperative grazing associations, or similar groups, have been organized locally to lease and manage the land purchased by the Bureau, as well as the land within the area owned by non-operating private owners. Through application of this directional measure, the effects of land purchase have been extended over an area four or five times as large as that actually acquired. A program was continued in cooperation with the State of Minnesota to classify the tax-reverted lands in northern Minnesota with a view to withdrawing from future sale those that were determined to be unsuited to agricultural settlement.

Zoning, cooperative grazing districts, soil conservation districts, land purchase, and other directional measures to a considerable extent supplement each other; sometimes their influences may overlap. Clarification of the functions to be fulfilled by each of these measures is necessary. For this purpose a study has been initiated in Yellowstone County, Mont., to test the values of the respective directional measures in relation to a specific set of problems, and to show how each may be assigned its proper place in an integrated program of land use adjustment.

WATER UTILIZATION

Considerable research and planning in the field of water utilization, a synthesis of engineering and land economics, has been initiated by the Bureau to determine the availability of water for various uses, and the ways in which the water may be utilized to achieve a more stable and constructive use of land.

Extensive water developments in land utilization projects, particularly in the Great Plains, have necessitated special exploratory surveys of existing supplies of water. As material concerning water resources has been assembled, certain definite problem areas have been demarcated, wherein an improvement in the use of water is vitally essential to the rehabilitation of the population and sound use of land.

Information concerning these problem areas, and concerning areas of water shortage, has been widely used by other agencies. A land- and water-use plan was completed for the Rita Blanca area in Texas and New Mexico. It is expected that this basic information on water-and-land economics will be of great value to the water-facilities program, scheduled to begin operations early in the fiscal year 1939. The Bureau participated in an intensive study of water and land resources in the State of North Dakota, helping draw up a plan for long-time improvement in land utilization in that State.

FLOOD CONTROL

Jointly with the Forest Service and the Soil Conservation Service, the Bureau has served on the Department's flood-control program. Its responsibility has been the assembling of social and economic data. How does the local agricultural economy of an area affect the run-off of water and consequent flood hazards? What changes in land use and types of farming are necessary and possible to encourage a better control of waters, and how can excess flood waters be used to promote better land use? These are some of the questions regarding flood control which the Bureau's investigations attempt to answer. By the end of the year, 30 watershed reports had been prepared, and 2 detailed investigations have been initiated in Texas and California.

RESETTLEMENT

Everywhere land-problem areas are characterized by over-population. If natural resources are to be conserved, some of the people must move elsewhere. Where can they find other opportunities? The Bureau has studied the opportunities for resettlement of emigrants from overpopulated regions such as the dust bowl, and investigated what has happened to refugees from drought who settled on farms without guidance from any source, and with little or no capital. Facts revealed in these studies have evidenced the drastic need for the Government to guide emigrants to lands where they can at least make a living. A special investigation was made of the opportunities for combining part-time forestry with farming in the Southeastern States. A report is in process of completion.

ACTION PROGRAMS

The Bureau has focused its land planning for the most part on the development of action programs, instead of confining itself to pure research. And in doing this the programs are being developed on an area basis—covering a given county, watershed, or other geographical unit. Fourteen area programs were intensively developed during the year; others are in preliminary stages of development. A study on a land program for Forest County, Wis., included, for example, the findings of all land use investigations in this area: Land ownership, history of settlement and exploitation, development of industries, local government, and other descriptive data. To this was added a proposed program including land acquisition, rural zoning, local governmental reorganization, and resettlement, that will, in the opinion of the technicians responsible for the report, result in the best use of the land resources of this county.

RURAL LIFE

The way of rural life has vastly changed in the last quarter century. For many farmers it has changed for the better, but for too many the living conditions are no better, and in some cases they are worse, than in earlier times. Hundreds of thousands of farm families are living under conditions far below the much vaunted high standard of American life.

Recent surveys show a marked improvement in farm living during the present decade. Physical burdens on the farms and in the farm homes have been lessened, public and private facilities making for a higher social and cultural order have been increased. But the improvement has been chiefly in the North; in many areas of the South, the living conditions of farm tenants and share croppers are worse than those commonly associated with city slums.

Much fundamental research is needed as a basis for governmental action designed to improve farm living conditions. To this end the Bureau has brought together the available information concerning the disadvantaged classes in American agriculture. It reveals the areas of concentration of low-income farm families, hired farm laborers, farm tenants, farm families on poor lands, migrating farm families, and farm families on relief and with low standards of living.

These data have been assembled in a report entitled "Disadvantaged Classes in American Agriculture." By showing how the various areas of concentration tend to coincide, this publication reveals the sore spots in American rural life and the major factors which tend to reduce approximately one-third of the farm population of the Nation to submarginal standards of living.

FARM POPULATION

The Bureau annually estimates the changes in farm population, but has been able to do little by way of studying the reasons for these changes and for the vast annual migrations between farms and cities. During the year approximately 1,160,000 persons moved off the farms, and about 872,000 moved from towns and cities to farms. There were also the usual shifts of farmers moving to other farms.

Business recession, drought, and farm mechanization were among the principal factors affecting farm population shifts during the year. There was a net migration off the farms amounting to 288,000 persons, but this decrease was more than offset by an excess of farm births over deaths. The total farm population was 31,819,000, close to the largest on record, as of January 1, 1938, compared with 31,729,000 in 1937.

The Bureau is trying to improve its techniques for estimating changes in farm population, utilizing different methods of selecting samples, making special efforts to reach important foreign-language groups, and making field checks on errors involved in the use of mailed questionnaires. Indexes of standards of living are being developed so that important information on this subject may be collected less expensively than heretofore.

FARM TENANCY

A pioneer study of the increasingly acute problem of farm tenency was instituted, dealing with the psychology of farm people and their reaction to governmental programs of action that seek to solve the farm-tenancy problem. Technical assistance was given Federal and State agencies, as in connection with the committee on farm tenancy appointed by Governor Kraschel of Iowa, last year, to investigate the present status of tenancy in Iowa and recommend steps for its improvement. The Bureau provided this committee with much research material and participated in its hearings and studies. Two reports on Iowa tenancy were prepared by Bureau personnel, one in cooperation with a representative of the State. The bulletins were published by the State agricultural experiment station. In making its recommendations the Iowa tenancy committee also draw upon much of the Bureau's data developed in earlier studies of this problem.

Similar work was done in cooperation with a committee on farm tenancy appointed by Governor Bailey of Arkansas. Further work in that State is to be done during the ensuing year. Besides cooperating in these State programs the Bureau helped the Farm Security Administration plan its farm-tenant purchase program.

FARM LABOR

A series of 11 reports was released giving the results of farm-labor surveys financed by the W. P. A. in the summer and fall of 1936. Representative areas of the Corn Belt, the Wheat Belt, the cattle and sheep country, and the tobacco, cotton, and dairy regions—areas where farm labor is employed the year round and areas where hired hands are needed for only a short time during the harvest season—were covered by these surveys.

The investigators found laborers of all races and abilities; young men and old, and some women. Some had hope of eventually becoming farm owners, but many were stalled on the lowest rung of the agricultural ladder. More information of this sort is needed. Information is needed regarding the underlying conditions affecting farm-labor supply and demand, and the wages and living conditions of farm laborers.

Studies are needed also of the present and prospective economic and social consequences of farm mechanization. Twenty years ago, vast armies of farm laborers were employed in the wheatfields; today relatively few men do the work of many. Similar changes have occurred, but in lesser degree, in other agricultural industries where machines have replaced men. Economists and sociologists are deeply concerned now over the probable effects of increasing farm mechanization in the South.

FARM MANAGEMENT

Major emphasis was given to the coordination of farm-management research and planning for action programs. Subjects included land utilization, agricultural conservation, soil conservation, rehabilitation, the profitable use of range lands, and agricultural adjustment and type-of-farming studies.

Farm-management investigations, made as a part of the land utilization program in the two Great Plains areas, included: (1) Continuation of the studies begun by the Land Use Planning Section of the Resettlement Administration in the southern Great Plains dust bowl area; (2) a study of pump-irrigation possibilities in the area adjacent to Hereford, Tex.; (3) special studies of adjustments in operating units needed in conjunction with the administration of purchase projects; (4) economic analysis of soil conservation districts; and (5) analysis of Agricultural Adjustment Administration data in county offices.

The most important activity in the northern Great Plains was a study of desirable agricultural adjustments in central South Dakota. The area under study lies in the transition zone between the major ranching and farming areas. It seems probable that arable farming will be continued in this area but that some drastic readjustments in sizes and types of operating units are needed to establish self-supporting farms on a long-term basis. A number of Federal action agencies are vitally interested in the results of this study.

The Bureau has assumed increased responsibility for the direction and supervision of studies designed to assist the Agricultural Adjustment Administration in the revision and formulation of programs that will more adequately achieve the long-time objectives of soil conservation and economical use of agricultural resources. A major activity was a review of the first 5-year period of operation of Agricultural Adjustment Administration programs from the standpoint of soil conservation and efficient farming. Although the programs under the original act did not operate directly through specific features to promote the long-time objectives of soil conservation and more efficient farming, and in some instances they were definitely retarding factors, they may be considered to have contributed potentially to the eventual accomplishment of these objectives.

Cooperative studies of certain aspects of Agricultural Adjustment Administration programs were begun in Illinois, Kansas, New Hampshire, Iowa, Virginia, Indiana, Arkansas, Tennessee, Maryland, North Carolina, Ohio, and New York. Tenancy and labor studies were made in the Mississippi Delta, Arkansas, South Carolina, and Illinois.

The Bureau cooperated with the Soil Conservation Service and with 17 State experiment stations in studies of the economic aspects of soil and water-conservation methods and practices. These studies

had as their objectives either one or both of the following considerations: (1) An evaluation of the effects upon crop yields and soil productivity of specific soil conservation practices applied within local areas; (2) an economic appraisal of the probable effects of changes in land use for conservation purposes upon systems of farming and farm incomes.

REHABILITATION PROGRAMS

The program of the Farm Security Administration indicates the need for knowing the conditions on individual farms as a basis for action. In the rehabilitation phase of this program loans are made to farmers that will permit individual operators to reestablish themselves on a self-supporting basis. Farm-management studies are needed in local areas to answer the questions of the size and type of business on which rehabilitation clients have the best chance to succeed.

A study of rehabilitation prospects in the Great Plains States indicated that in the better farming counties in the eastern part of this region there is little need for a widespread rehabilitation program, and that in a few of these counties there may be opportunities for a closer settlement. Rehabilitation needs in such areas arise primarily from a shortage of working capital and the need of funds to protect the operators' equity in farm property.

In the western areas of low or variable land productivity it was evident that some sections had been too closely settled, that a more extensive type of farming would be necessary to stabilize farm incomes. In the most distressed areas drastic adjustments in land use, in the size of the farm unit, and in the type of production seem desirable. In such areas public action will probably be necessary to induce the adjustments needed.

A study of small ranches in eastern New Mexico was made to analyze, if possible, the income prospects of southern Plains wheat farmers who would shift to a small ranch type of farming. This is of special interest to the Farm Security Administration in making loans to farmers who wish to make this change. In cooperation with the University of Minnesota a study was also made of the financial progress of rehabilitation clients.

RANGE PROBLEMS

A study was made of ranching problems in Elko County, Nev., the following agencies cooperating: Bureau of Agricultural Economics, Forest Service, Agricultural Adjustment Administration, Division of Grazing, Bureau of Indian Affairs, Farm Credit Administration, Nevada Agricultural Experiment Station, and the Nevada Extension Service. A representative of the Bureau is project leader. The study was initiated to work out plans for the use of the agricultural resources of the area that will lead to the greatest and most enduring prosperity.

Results of this study will be of direct use to those responsible for administration of the public range land, to all who are interested in conservation of agricultural resources, and to agencies responsible for the advancement of credit. It represents an interesting effort to

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coordinate the activities of all agencies concerned in the agricultural problems of the area. It is hoped that the study will suggest a well-rounded area-adjustment program that will meet with the approval of various educational and action agencies and as a result will be actively sponsored by them.

TYPE-OF-FARMING RESEARCH

Active participation on cooperative studies in type-of-farming and agricultural adjustments were continued in Montana, Texas, West Virginia, Mississippi, and Wyoming. New projects of this type were started in Maryland, New Mexico, Alabama, and Georgia. In the Montana study, the objective from the start has been to provide definite and localized information on the organization of Montana farms and ranches and their income prospects for the guidance of action agencies in their programs. A technique has been developed for constructing records for individual farms and ranches from secondary sources. From these records estimates have been made of income prospects from different sizes and types of farms in specific locations. From this material suggestions are made regarding adjustments necessary for establishment of self-supporting units on a long-term basis.

LOCALIZED AREA STUDIES

Localized area studies of farm-adjustment problems were conducted jointly with agricultural experiment stations in 13 areas of 11 States. These studies permit detailed analysis of important problems on which adjustment efforts should be centered. An illustration is the study of the High Plains cotton area of Texas. This area shows a rapid shift from horse to tractor power in the period from 1931–37. This change, which also involves two- and four-row cotton machinery, may have far-reaching effects on the sizes and the number of farms in the area, and hence on the number of farm people that may be displaced by the introduction of tractor power and large-scale machinery. Estimates have been made of the number of farms needed to produce the 1934 cotton crop in five High Plains counties, assuming the use of various power and equipment units. If tractor-drawn two-row equipment were used on all the land in this area the crop could be produced with 58 percent of the actual number of farms in the area in 1934. If tractor-drawn four-row equipment were used only 33 percent as many farms would be needed.

COMMODITY STUDIES

Commodity studies and special projects in the field of farm management dealt primarily with production costs, farm incomes, and farm practices. Several of these studies are continuous, others represent timely inquiry into problems of special interest. Projects included a study of hogs in Georgia; the efficiency of dairy farming through dairy herd-improvement association records; yields, prices, and returns of apple varieties in the Cumberland-Shenandoah and neighboring areas; organization and crop-production practices on grain farms in selected areas of the Great Plains and in the Pacific

Northwest; cost of producing corn, wheat, oats, and cotton; cost of producing fruit and truck crops; farm returns; coordination of farm-business-analysis studies; and wildlife as a supplementary farm enterprise.

The Bureau is taking definite steps to meet the needs of action agencies for farm-management information. A section dealing specifically with coordination of farm-management programs has been organized. However, there is still need for longer-term research studies of certain outstanding farm-management problems. In each major agricultural region there are certain serious farm-adjustment problems that should be studied. These include such subjects as the alternatives to cotton production in view of the economic outlook for cotton, the operation of noncommercial farms, and the effects of technological improvements on family farming.

BASIC STATISTICS

The Bureau is looked upon as the central governmental source of all kinds of domestic and foreign statistical information relating directly or indirectly to agriculture. Individual statistical series collected and compiled regularly find uses in countless ways by researchers, farmers, business men, and students. The Bureau's crop and livestock reporting services are the basic source of farm-production information upon which most of the economic research of the Department and the State colleges, as well as private organizations covering the agricultural field is based.

Forecasts and estimates were made of the acreage, production, stocks, sales, utilization, and prices of practically all crops grown in the United States. Estimates were made of the numbers of all classes of livestock on farms, and of the production, sales, disposition, and value of livestock. Forecasts were issued of the numbers of hogs, sheep, and cattle available for market.

Estimates were made of milk production, utilization, and sales, and reports issued as to the quantities of various products manufactured from milk. Estimates were made of poultry and egg production, and of the numbers of chickens and turkey poults commercially hatched. Estimates and index numbers were made of prices farmers received for products and of prices paid for things they bought, and estimates of the farm-labor supply, demand, and wages. Reports were issued on the movement of agricultural commodities by rail, boat, and motortruck. Research included the relationship of crop yields and weather phenomena.

The crop and livestock reporting organization also acted as a service unit in the collection of a wide variety of economic data relating to movements of farm population, land values, taxes, farm expenditures, cost of production, farm tenancy, and production and sales of forest products.

COUNTY ESTIMATES

There was an unprecedented increase this year in the demand for agricultural statistics, especially for areas smaller than States, such as crop-reporting districts and counties. Some district information

was included in the reports released by the different State statisticians. It was possible to prepare comprehensive data by counties in a few States where cooperation is in effect with a State agency and there are State laws requiring annual censuses of agriculture. Some special county estimates were prepared for the Agricultural Adjustment Administration using funds allotted for this purpose. The preparation of county estimates generally would require an expansion of the field service to permit the making of extensive annual field surveys.

The Bureau collected for the Agricultural Adjustment Administration a large volume of special statistical data for use in the soil conservation and crop-control programs. These data covered a wide variety of subjects ranging from county estimates of cotton, wheat, corn, rice, milk cows, and other cattle to special price reports, and advance estimates on certain crops such as cranberries and sugar beets. Efforts are now being made to tap, for use in preparing more exact county figures, the vast store of information relating to crop acreages that is being accumulated in various States in connection with the administration of the Agricultural Adjustment Acts.

INCOME PARITY

Much statistical research dealt with projected revisions of indexes of prices received and paid by farmers during the last 28 years. Research relating to income parity for agriculture included a complete revision of the estimates of farm income for about 90 different commodities, placing all estimates on a calendar-year basis from 1910 to date and breaking them down by States since 1924, or for a longer period where State data are available. Data relating to farmers' expenditure during the period 1910 to date were revised and expanded. Information relating to nonfarm income of persons on farms was analyzed and summarized, and available information on national income (excluding income of persons on farms) was assembled.

In last year's report was described some of the work that had been done in developing a method of treating time series so as to overcome the difficulties introduced because of serial correlation. In 1937–38 this method was applied to additional series, including egg prices and egg receipts. Definite evidence was provided, by the use of this method, of a changing seasonal variation. None of the methods now in common use would have shown this change so definitely if at all. It was found that the relation of receipts to prices is not so close as is indicated by the ordinary methods.

It is planned to simplify the routine and complications of this procedure, and to present it for the use of other analysts. Also, a further investigation of the peculiarities of the serial correlation existing in various forms of price series has been started. One result of this work is an article by a member of the staff entitled "Serial or Coherent Correlation in Price Series," which appeared in the Journal of Farm Economics, for May 1938. Plans were made for setting up a separate unit within the Bureau for the purpose of developing more appropriate methods of analysis in relation to time series, particularly prices.

STATISTICS FOR USE

In response to the needs of public and private agencies, the Bureau has sought increasingly to supply statistical services of practical value in solving national, regional, and local agricultural problems. Sources of statistical information have been greatly improved in recent years, and increasing effort has been made to interpret this information for the common understanding. Figures are not gathered for their own sake, but for the light they may throw upon the complex problems of a commercial agriculture.

Besides statistics of agricultural supply, demand, and prices, the Bureau gathers and interprets many series in related fields that affect the Nation's agriculture. It makes many special statistical studies at the request of public and quasi-public agencies, and is continually filling requests for information from individuals, groups of individuals, and organizations of one kind or another. A large volume of statistical research was done for State and Federal agencies engaged last year in formulating new agricultural adjustment programs.

The Bureau contributed in many ways to making the statistical foundation for adjustment programs more adequate and reliable. Price analyses were made as an aid to the administration in promulgating loan programs for wheat, cotton, corn, wool, and mohair. Material was prepared for use by the Secretary of Agriculture in hearings before the Interstate Commerce Commission with respect to the request of the railroads for a 15-percent general increase in freight rates.

A study of foreign markets for, and the possibility of, increasing exports of tobacco, in accordance with Senate Resolution 291 was made. Prospective domestic and foreign supply and demand conditions were analyzed from the standpoint of arriving at desirable production goals for agriculture in future years, and the material was used in discussions with extension workers and others designed to add to public understanding of the problems involved.

In November 1937, the Bureau of Internal Revenue of the Treasury Department published an exhaustive report prepared by the Bureau entitled "An Analysis of the Effects of the Processing Taxes Levied Under the Agricultural Adjustment Act." Release of this publication was followed by many requests for conferences with attorneys and economists interested in the findings, particularly with respect to cases pending before the Bureau of Internal Revenue. Many requests for statistical information and analyses were received from members of Congress.

STANDARDIZATION AND INSPECTION

Previous reports have detailed the Bureau's standardization, inspection, and market news services instituted nearly 25 years ago. Annually, these activities have been expanded at the insistence of producers, shippers, processors, and distributors of farm products. Quality standards have been developed for all the principal farm products—cotton, wheat, corn, feed grains, hay, livestock, meats, butter, eggs, dressed poultry, fruits, vegetables, and many others. Inspection services have been put into effect to certify the quality of products marketed under these standards.

Both services, standardization and inspection, are administered under specific legislation, such as the Grain Standards Act, Cotton Standards and Cotton Futures Act, and other authorizations by Congress. Greatest use of these services are made by producers, shippers, and dealers to facilitate trade in the various commodities. Increasing effort is being made also, with the cooperation of processors and distributors, to extend the benefits of the Bureau's food standards to consumers. Large quantities of canned foods, dairy products, poultry products, and meats were Government graded and labeled as to quality last year.

Large quantities of standardized and inspected products were marketed during the year, and there was much research looking toward the improvement of standards and the development of new techniques in their formulation and administration. The effort is to substitute exact mechanical, chemical, and other tests and devices for the human judgment and skill that involve human variations. Whereas in former years it was often necessary to describe a factor of quality in rather general terms, it is now possible, in many cases to give it a specific value. Where expert estimation was formerly used there are now apparatus or tests that measure exactly.

An improved cotton-fiber sorting machine permits the measuring of fiber lengths with a high degree of accuracy, a bundle fiber test for strength of cotton fibers, and an improved cotton-waste analyser separates the different elements in the waste for intensive study. A saccharimeter is used to determine the sugar content of grapes, a sugar-acid test is made to learn the maturity of citrus fruits, and the specific gravity test is used to learn the maturity of cantaloups in the States that have laws prohibiting the shipment of immature melons.

Penetrometers ascertain the consistency of certain canned products, hydrometers test the density of sirups, salinometers test brine solutions, and a fruit pressure tester is used to ascertain the maturity of canned peaches and pears. Notable progress was made in developing techniques and apparatus for measuring the color of products. The Bureau's technicians are studying changes in cotton colors and the conditions or combinations of conditions that are likely to bring about these changes. Degrees of color are important quality factors.

Many public-service patents have been issued to Bureau workers who have invented grain standardization and grading devices. They include the so-called Boerner sampler which is used to divide large samples of grain into aliquot portions for inspection purposes. In grading grain for export, the public-patent ship sampler takes complete cross sections from the falling grain as it leaves the delivery spout for the hold of the ship, so that several samples, when combined, accurately represent a shipment of grain. A standard method of determining the protein content of wheat has been developed and is now in use.

GRAIN STANDARDS

At the close of the year there were 407 licensed grain inspectors under the Grain Standards Act, inspection was available at 175 points in 32 States, there were 46 Federal grain supervision offices at the important grain markets. More than 1,250,000 carloads of grain

were inspected, and the Federal supervisors handled nearly 80,000 appeals from these original inspections.

Grain-standards research pertained principally to (1) a continuation of research on the grade factor "shrunken and/or broken kernels" in the wheat standards and to the quantities of such material found in representative commercial lots of country-run wheat, exelevator wheat, and export wheat, and (2) a continuation of studies pertaining to the malting properties of barley, especially barley of far-western production, and to grade factors to indicate such properties.

Technological research in connection with instruments used in grain grading included studies of newly designed electric moisture meters, improvements in grain-sieving and sizing devices, and the perfection of a practical and rapid chemical method for determining fat acidity in corn. Many milling, baking, and chemical studies were made in testing the commercial value of new wheat varieties.

In cooperation with the extension service of the Department 108 grain-grading schools in 18 of the important grain-producing States were held during the year at which 9,193 grain producers, shippers, and elevator operators were in attendance. The objectives of these grain-grading schools are principally to improve seed quality, to improve quality of grain shipped to the terminal markets, and to demonstrate to grain producers the defects in market grain which cause discounts but which may be avoided by the adoption of remedial methods on the farm.

Important service was rendered the Agricultural Adjustment Administration and the Commodity Credit Corporation in conjunction with the Federal corn-loan program. Numerous training schools were organized and conducted at which moisture testing of corn was demonstrated to the Commodity Credit Corporation employees responsible for the evaluation of ear corn in farm cribs tendered as collateral for Federal loans. Throughout the year periodic supervision of moisture-testing activities for this purpose was conducted.

Federal-State permissive rice-inspection service supervised by the Bureau was conducted under agreements with the States of Arkansas, California, Louisiana, and Texas. Federal rice inspection was conducted at New Orleans. Four rice-inspection laboratories were operated in the Southern States, and three in California. The Bureau also rendered material assistance to the Federal Surplus Commodities Corporation in the purchase, inspection, and documentation of 641,900 hundredweights of milled rice in the Southern States for national relief purposes.

MARKET NEWS

The Bureau's market news services—reporting supply, demand, and price conditions at primary and terminal markets—now covers all the leading farm products. Besides increasing the scope of these services for the information of producers and shippers, continual research seeks to improve them, to make known to farmers the essential facts needed in the orderly and efficient marketing of their products. Modern methods of acquiring and disseminating market news are being increasingly used, notably the radio, which puts the reports directly into the farm home almost as fast as conditions

change in the markets. (This radio service is conducted practically without cost, through the cooperation of the various national radio chains and radio broadcasting stations.)

NEW COTTON SERVICES

A South-wide cotton classing and market news service is the Bureau's latest development in standardization, inspection, and market news work, to improve quality production, to secure for farmers proper premiums and discounts in cotton prices. The service is available to groups of farmers organized to promote the improvement of cotton. The new service went into effect on July 1, but already the requests for cotton classing and market news are taxing the facilities that have been set up.

The new cotton classing and market news service is a logical development of work done in this field on a limited scale in recent years. Producers have appreciated the ability to appraise more accurately the market value of their cotton, to compare the quality outturn of different varieties on their own farms with the cotton produced on other farms in their communities. Nearly a third of the cotton handled by cooperating ginners during the past year was bought and sold according to the Government class or with the Government class used as a guide.

There were increases in the number of bales of cotton classified and certificated for delivery on futures contracts under the Cotton Futures Act, and in the classing of more than 6,000,000 bales under the Cotton Standards Act. Some 464 classers were licensed under the Cotton Standards Act, compared with 301 in 1937. More than 3,000 grade boxes of the official cotton standards and 9,850 staple types, were prepared for public distribution.

Cottonseed grading and market news services were inaugurated in the Mississippi Valley States. Cottonseed samplers and chemists were licensed, more than 1,300,000 tons of cottonseed sold or offered for sale to crushers were sampled, 52,286 grade certificates were issued. The market news service included immediate publication of all changes in the price for base grade seed, and a weekly review of the cottonseed market by counties in each State.

COTTON RESEARCH

Much of the technological research in cotton is a scientific effort to learn more about the physical and chemical properties of cotton, to improve the Government grades so that they may more accurately represent the quality of the crop, to improve the mechanical processes of ginning and spinning cotton so as to reduce waste and lessen deterioration of cotton from field to mill. In modern laboratories cotton is subjected to all the ordinary tests, and to many extraordinary ones invented by the Bureau's technologists, for strength, color, and structure.

Considerable special technological research is done, as for example, into the average strength of yarns and cords from a given crop. Studies are also made of rainfall, temperature, and other growth data in an effort to explain the spinning and yarn differences of cotton from different crops. Complete fiber tests are under way.

Steady expansion of industries that process cotton linters in the manufacture of an increasingly wide variety of chemical and other industrial products emphasizes the need for fundamental technological research and service to growers in this field. The Bureau makes an annual survey of the quality of cotton linters, issues reports showing the estimated number of bales of each grade of linters produced and the percentages by States. A weekly review of linters prices is issued. Last year, 90 standard grade boxes for linters and 40 expositor types were distributed.

Fifty years ago cotton was a single crop. The seed, except as needed for planting, was a total waste. Cotton is now a duel crop with the lint ranking first and the seed second in farm value of products grown in the Cotton Belt. Farm income from cottonseed ranks about tenth or eleventh of all farm crops in the United States. Standards for grading cottonseed have been established by the Bureau, and a limited market news service is maintained, making price information available to producers and enabling middlemen who buy cottonseed direct to pay prices more nearly in relation to the actual value received from the seed.

GINNING AND SPINNING

Cotton ginning investigations in cooperation with the Bureau of Agricultural Engineering now place more emphasis upon problems involved in attaining normal capacity of gins without dense seed-roll operation and associated damaging effects on lint quality; upon economical methods and apparatus for conditioning, handling, and unloading seed cotton at the gin; and upon the accumulation of data for use in demonstration and extension activities.

Various types of cotton driers recently developed by the Bureau's laboratories along with other combinations of drying and cleaning facilities that have been advocated are proving their worth over a wide area. Adverse weather conditions over much of the Cotton Belt last fall afforded a conclusive test of the effectiveness of this equipment, about 1 million bales of cotton being dried by more than 550 driers in commercial gins.

The work of the spinning project was continued in the two field cooperative laboratories at Clemson, S. C., and College Station, Tex. Previous theories in regard to the importance of fineness of fiber as an element of quality, first demonstrated in the Bureau's laboratories in the spinning and testing of Hopi cotton, as well as Hopi-Acala crosses, were confirmed by tests on an entirely different variety of cotton. Two selected samples of different strains of a commercial variety were found to possess practically the same length of fiber, but one sample was found to have an average fiber weight per inch 22 percent less than the other. Yarns spun from the finer cotton averaged 32 percent stronger than those from the coarser cotton and manufacturing performance differed strikingly for the two cottons.

NEW FABRICS

Major emphasis in developmental work was placed on the preparation of new fabrics and specifications, many of which are being used experimentally in connection with the Department's cotton-diversion

program. A new type of raw-sugar bag with special reenforcement was designed to withstand stevedore hooks which constitute a major difficulty to using multiple-trip bags. A limited amount of work was begun in developing new methods of finishing and treating cotton fabrics. A study was made of the use of cotton in fertilizer bags. Ten years ago only a little less than 3 percent of the fertilizer consumed was packaged in cotton. Fertilizer bags required the equivalent of about 17,000 bales of cotton in 1937. Potential requirements of this use are estimated at more than 130,000 bales. A study of recent developments in the field of synthetic fibers yielded much information with regard to fibers that compete with cotton.

SAMPLING COTTON

Work was started on a project designed to provide a better system of sampling cotton and for coordinating this system with marketing procedures. Equipment was devised for sampling bales automatically while they are being formed at gins, to provide a true cross section of each bale and to eliminate the human equation in the drawing, wrapping, and identifying of samples with the bales from which they are drawn. When this equipment is perfected and its use coordinated with marketing procedures, it is believed that costs incident to marketing cotton can be materially reduced.

Letters patent were obtained for a permanent identification tag for cotton bales. The use of this tag in American cotton bales would facilitate marketing procedures and would tend to eliminate careless and irregular practices now associated with the packaging of American cotton. But in order to realize the full advantages of this device it will be necessary to provide for its universal use in American raw cotton. This could be accomplished by a statute requiring an identification tag in all bales moving in commerce.

FEED GRAINS

Farmers produced this year about 95 million tons of the four feed grains—corn, oats, barley, and grain sorghums. To this must be added the supply carried over from last year. There was a small increase in livestock numbers this year, but the supply of feed grains per grain-consuming animal is close to the largest in 12 years. In addition, the supply of hay is probably the largest since 1927.

This situation completely reverses conditions during the recent period of droughts which made necessary the importation of feed grains. Instead of imports this marketing year, the Nation has exported more than 130 million bushels of corn, and the prospects for this fall and winter are for continuing large exports of corn in view of the small Argentine supply.

The Bureau keeps closely informed on the feed-grain supply and demand situation so that grain and livestock producers may properly plan and put into effect their production and feeding programs. Two important phases of the Department's research program covering forage crops were completed: (1) A comprehensive outline covering the whole field of forage research; (2) a survey of important forage-research work in the Department and in the State agricultural experiment stations. Part 3 of the program deals with ex-

pansion and acceleration of important phases of the work now under way; part 4, with new phases of program that should be developed.

There was a steady increase in requests of individuals, newspapers, and radio stations for market news on grain, hay, and feed. No changes were made in the hay and straw standards, but a number of samples of straw from the central West were obtained and separated in order to study the problem of chaffiness. The hay-inspection service was continued on about the same basis as in 1937.

THE SOYBEAN INDUSTRY

A 15-percent increase was recorded in the number of inspections of beans, peas, and soybeans. Application of the official standards for these commodities was studied in connection with the supervision of licensed inspectors, and the practicability of the standards in their present form was again verified. Oil and protein studies of soybeans are to be resumed as samples of the 1938 crop become available, to determine whether revisions are needed in the standards for this commodity.

A study of recent trends and the present economic status of soybeans in the United States revealed that the rapid growth in recent years of acreage, production, and crushings of soybeans has been due, in part at least, to unusual conditions prevailing during those years. The maintenance of prices in the face of increased production was the result of relatively small supplies of certain other commodities, particularly cottonseed, flaxseed, and lard. Consequently, further expansion of soybean production seems undesirable until there is greater certainty of sustained demand. Although industrial utilization of the soybean and its products has attracted widespread attention, the fact is that industrial demand still constitutes only a small part of the total demand for soybeans. The position of soybeans in American agriculture and industry is not yet clearly established. Much will depend on the extent to which research workers are successful in improving present uses and discovering new uses for soybeans.

VERIFIED SEEDS

New research studies were begun in the marketing of Grimm alfalfa seed to ascertain the form of varietal assurance the purchasers were given on this seed, and a survey was made of the kinds and volume of seed certified by State crop improvement associations or other certifying agencies. Studies were made of country-run timothy, Sudan grass, and other forage-crop seeds with a view to establishing an inspection service of country-run forage-crop seeds, and of records kept by seed shippers and dealers in connection with the seed verification service.

The Bureau was given additional responsibilities, also, in connection with the administration of the Federal Seed Act in cooperation with the Bureau of Plant Industry. These responsibilities included the checking of import records and the supervision of weighing and staining 197 large commercial lots comprising 4,800,000 pounds of imported alfalfa and red clover seed in accordance with the requirements of the Federal Seed Act and the regulations governing importations.

LIVESTOCK AND MEATS

Livestock producers are doing rather better than crop producers this year compared with last. Prices of livestock and livestock products have declined less than prices of crops, and a major item, feed, in the cost of production, has been relatively favorable to livestock producers. A slight expansion in the livestock industries during the past year is expected to carry further through the next 2 years.

The Bureau conducts an extensive market news service on livestock and meats, has developed grades for these commodities, and does much research in connection with special economic phases of the industry. The market news service covers the public livestock markets, wholesale meat markets, the Boston wool market, the direct marketing of hogs, and the direct and contract marketing of sheep and lambs. It was extended in the latter part of 1938 to livestock markets in southern Georgia, northern Florida, and eastern Alabama.

More than 606 million pounds of meats were graded by the Bureau in the many markets interested in selling and pricing meats on the basis of quality. This service was extended to five new sections—San Diego, Calif.; Topeka, Kans.; Dubuque, Iowa; Cincinnati, Ohio; and Memphis, Tenn. It was extended to nonfederally inspected plants at St. Louis where efficient meat inspection is maintained.

Tentative arrangements were made for the establishment of standards for hog carcasses with respect to degree of hardness at the request of producers in the Southern States where a large number of hogs that produce soft and oily carcasses are raised. This project is being conducted in cooperation with the Bureau of Animal Industry. After the establishment of grades it is planned to establish a grading service for hog carcasses with respect to degree of hardness. Revised live-hog and hog-carcass grading charts were prepared for use in connection with the quality of meat study and other work in connection with which live hogs and hog carcasses are graded by both the Bureau of Agricultural Economics and the Bureau of Animal Industry.

LIVESTOCK AUCTIONS

A study of community livestock auctions in Iowa was made in cooperation with the Iowa Agricultural Experiment Station and the Farm Credit Administration. It revealed that all the auctions in Iowa are privately owned. The investment in physical facilities ranges from less than $1,000 to more than $12,000. The business of the individual auctions studied ranged from less than $4,000 to more than $1,000,000 in 1936. Charges for selling livestock at most of the auctions studied are based on sales value. Three percent is the most common rate. Charges at a few auctions are on a per-head basis. Cattle and calves are sold in larger numbers than sheep and lambs. In 1936, farmers consigned 64 percent of the cattle, 73 percent of the hogs, and 84 percent of the sheep and lambs to auction. Other consignments were from dealers. Most of the slaughter livestock sold is purchased by dealers who resell to packers. Few packers have their own buyers at auctions.

About 80 percent of the auctions are provided with scales and most of the livestock is sold by weight. In 1936 about 84 percent of the livestock was delivered to the auctions by truck, and 92 percent was

removed by this means of transportation. The remainder was transported by rail. About two-thirds of the livestock was delivered to the auctions from within a radius of 25 miles. Veterinarians appointed by the Iowa State Department of Agriculture inspect all livestock consigned for sale in order to prevent the spread of animal diseases.

FOUR NATIONAL PACKERS

A study of livestock slaughter revealed that the four national packing concerns handled in their federally inspected plants 65 percent of the cattle, 71 of the calves, 52 of the hogs, and 80 percent of the sheep and lambs slaughtered under Federal inspection in the United States during the 5-year period 1933–37. Of the total slaughter (wholesale, retail, and farm), they handled 45 percent of the cattle, 43 of the calves, 33 of the hogs, and 65 percent of the sheep and lambs. This represented about 42 percent of the meat produced from all slaughter.

The proportion of the total federally inspected slaughter handled in plants operated by these packing companies since 1920 has decreased for cattle and increased for calves. It increased for hogs in 1933 but has remained unchanged since that year. The proportion of sheep and lambs slaughtered increased from 1921 to 1929 but has decreased since then. The four national packing concerns were operating 88 slaughtering plants at the end of 1937. All but six of these were under Federal inspection. Between 1930 and 1937 they purchased or built 30 slaughtering plants, but 12 of those acquired were closed, making a net gain of 18 during the period.

FACTORS AFFECTING SUPPLY

A study of factors affecting cattle-slaughter supplies and cattle numbers in the United States from 1900–1936 is nearing completion. It indicates that year-to-year changes in cattle slaughter are brought about largely by changes in cattle prices in relation to feed costs, with such circumstances as the severe droughts of 1934 and 1936 causing marked liquidation of cattle in those years; that year-to-year changes in calf slaughter are associated with changes in prices of milk cows in relation to prices of dairy products; and that changes in cattle numbers on farms result largely from changes in prices of cattle in relation to feed costs and prices of dairy products, with the comparative regularity of the cattle-number cycle largely dependent on the interrelationship between the number of cows and heifers on farms and the size of the annual calf crop.

A similar study of the factors affecting prices of meats and meat animals was begun.

DIRECT MARKETING

Continuing research has revealed that direct marketing of livestock is being more extensively used each year. Its growth is shown by the changes in the percentages of all slaughter livestock purchased direct by packers. Increases from 1936–37 were: Cattle from 20.5 to 22.5 percent; calves from 29.6 to 33.7; hogs from 48.1 to 48.6; and sheep and lambs from 27.8 to 32.9 percent. A study of the direct marketing of stocker and feeder livestock shows that during the past

few years probably one-half of the cattle purchased as feeder animals were bought at points other than public livestock markets. The proportion of the feeder sheep and lambs marketed in this way was probably even larger.

WOOL RESEARCH

Work on wool included standardization research, marketing studies, fiber research, shrinkage research, and educational activities. Much time and attention were concentrated on the shrinkage problem. Practical forms of the standards were prepared and distributed as heretofore, standard wedge strips were distributed, and experimental work was undertaken in attempting development of new forms of grease-wool-grade standards, related to types and grades of wool produced in respective States. Proposed revisions of the upper seven grades of the wool top standards, 80's to 50's, were submitted to the industry in the latter part of the year. These revisions would change the grades from a comparison to a measurement basis.

Studies were made of the marketing of wool through auction sales and assistance was given marketing officials, extension workers, and wool-growers' organizations and their memberships in matters related to marketing, in connection with the clip-sampling work in the wool producing States. Fiber-measurement work on grades of wool top, and photomicrographic work on grease wool grades were carried on, principally as related to wool standardization, for the determination of the fineness and the distribution of the various grades.

DAIRY AND POULTRY

Especial effort is being made to improve and broaden statistical and economic research and to contribute sound analyses in helping to solve problems in the dairy and poultry industries. The Bureau's dairy and poultry market news service and standardization programs also are being reappraised to this end. An important development last year was the revision of the butter grades. A new type of market information is being organized to meet the needs of the dairy and poultry industries for data regarding current movements of products into consumption.

Arrangements have been made at Chicago, for example, for the issue of weekly reports of sales of butter and eggs by a number of chain stores and milk distributors. Following completion of these arrangements, a broader report is contemplated, whereby reports from packers, chain store companies, cooperative marketing associations, and other agencies will furnish data weekly regarding quantities of butter and eggs moved into retail outlets.

More complete data are being obtained of motortruck receipts of dairy and poultry products in the markets. A new type of price information on poultry and eggs, the prices paid shippers, f. o. b. terminal markets, has been made available at several markets. This information is of value particularly to nearby producers since it represents the delivered prices they may expect to receive. Reports also are being issued periodically regarding production, stocks, sales, and prices of poultry and dairy products.

Manuscripts have been prepared for publication, dealing with world production and international trade in butter and eggs, and

the production and consumption of manufactured dairy products in the United States. Special studies were made last year in connection with the utilization of milk and the production of different manufactured dairy products, regional differences in ice-cream production, and changes in wage rates and output per wage earner in dairy-manufacturing plants.

Similarly, the Bureau's research in poultry and eggs has been redirected to develop the basis for an objective answer to certain important questions which constantly arise in connection with poultry outlook work and economic analyses. These questions include seasonal changes in prices, changes in the output of hatcheries, and the peaks and valleys in storage holdings of poultry and eggs.

CONFLICTING DAIRY LAWS

Federal agencies dealing with economic problems in the dairy industry have concluded that a fundamentally bad situation exists in the multiplicity of State laws and municipal ordinances that are in effect interstate trade barriers. Studying this situation, the Bureau has found that many cities and States limit the area from which cream or milk may come by restricting the area to which they will send inspectors or in which they will grant licenses or permits. In some cases barriers have been erected frankly to exclude or to hamper the sale of out-of-State dairy products; in others the barriers are disguised as sanitary laws and regulations.

A large body of information has been assembled by the Bureau on this subject for use by Federal and State agencies seeking to effect improvements in the interests of producers, distributors, and consumers. Three reports have been published dealing with milk legislation and regulations in New England. They describe the present status of milk inspection by States and towns in this area, milk inspection in health districts of Massachusetts, and local laws and regulations governing the production of grade B milk. Through the New England Research Council on Marketing and Food Supply, the Bureau is cooperating with the six New England agricultural experiment stations in an effort to develop better regulations by city, State, and Federal agencies, and to make more efficient the marketing of milk at country points and in cities.

A study is being made also of interregional competition in the dairy industry. A report on this situation affecting the Midwest has been made to the Agricultural Adjustment Administration. Similar research is under way in New England where individual records have been obtained on 1,225 farms in sample dairy areas. Supplementary farm-management data have been collected in New England and the Lakes States in connection with an inventory of soil resources, local transportation and marketing facilities, and a compilation of dairy production trends and prices.

FRUITS AND VEGETABLES

The production of fresh fruits and vegetables is a billion-dollar industry. A recent study by the Bureau revealed that the gross income from vegetable production alone during 1933–35 exceeded that from cotton and cottonseed by nearly 4 percent; grains, by 15; fruits and nuts, 58; tobacco, 238; sugar crops, 900; and all other crops com-

bined, by 105 percent. It exceeded slightly the gross income derived from the major classes of livestock except dairy products. Vegetables are produced in every State, but in the main the industry is concentrated in certain well-defined areas along the Atlantic seaboard, in the Gulf States, the Pacific Coast States, and certain areas in the North Central States.

Principal activities of the Bureau in the fruit and vegetable industries include the issuance of production estimates, the establishment of standard grades for use as a basis of marketing, the maintenance of inspection services for the certification of products as to grade at shipping points and terminal markets, and the maintenance of a Nation-wide market news service to inform producers of market supplies, demand, and prices. The Bureau has issued 79 standards for 55 different fresh fruits and vegetables. More than 500,000 cars, or carlot equivalents, of fruits and vegetables were inspected on the basis of these standards at shipping points and terminal markets during the past year.

PRICE-MAKING FACTORS

For several years the Bureau has been studying and analyzing the factors that affect the prices of fruits, potatoes, sweetpotatoes, and various truck crops for market. Basic data, such as estimates of acreages, production, and prices are in process of statistical revision, but in general it appears that changes in the crop-year average prices of most of the major fruits and vegetables are closely related with changes in production of the commodity and in the level of incomes of consumers. As to fruits, including citrus fruits, it appears that the upward trend in demand that characterized the period 1919–26 has not continued.

Studies reveal that in many instances producers receive less than one-half the prices paid by consumers for fruits and vegetables. Efforts are being made to reduce the price margin between producer and consumer. Information is much in demand on harvesting, grading, packing, shipping, and handling in the markets, and on prices by variety, grade, size, and price-making factors. Publications relating to these and other related topics to promote efficient marketing were prepared or published.

SPECIAL MARKETING STUDIES

Special marketing studies are yielding information of value to producers of specified crops. A recent study of market distribution and price spread of Louisiana strawberries is an example of this work. The strawberry study revealed that although there are 135 markets of 50,000 or more population that did not receive carlot shipments from Louisiana in 1938, most of these markets are near large cities where supplies are obtainable by motortruck. It was learned that about one-fifth of the carlot receipts in the large markets are redistributed by truck.

A project of widespread interest deals with the advertising of vegetables. This study was initiated as a result of requests by representatives of the vegetable and potato industries at a meeting held in July 1937. It is in three parts: (1) Analysis of selected cases of

consumer advertising of farm products; (2) the advertisability of specified vegetables from the standpoint of their marketing and production conditions; and (3) the relation between characteristics of demand for these commodities and the probable effects of advertising. Tentative findings of the first section, a case study of the effect of advertising on the prices and incomes received by producers of raisins, oranges, cranberries, and walnuts, indicate that advertising has had much less effect on the demand for these products than seems to have been popularly assumed. The second part of the study indicates that potatoes and a number of other vegetables have certain characteristics of production and marketing that make their adaptability to advertising questionable.

PERISHABLE COMMODITIES ACT

The Bureau administers the Perishable Agricultural Commodities Act which seeks to suppress unfair and fraudulent practices in the marketing of fresh fruits and vegetables by licensing members of the industry, and revoking licenses for cause. As of June 30, 19,788 commission merchants, dealers, and brokers were under license. Seven licenses were ordered revoked, and 19 were ordered suspended during the year. Forty-six were automatically suspended through failure of respondents to pay reparation awards.

Nearly 2,400 complaints of violations of the unfair conduct provisions of the act were made to the Bureau during the year. Amicable settlements of disputes were made in 745 cases through informal administrative action resulting in the payment of more than $303,000 to complainants. Formal action was necessary in only about 12 percent of the complaints. There were issued 341 formal orders, of which 246 required the payment of damages aggregating $87,414; the remainder provided for disciplinary action only or dismissal of the complaints.

The Bureau administers also the Standard Containers Act which authorizes the establishment of uniform specifications for baskets, boxes, and other containers used in the packaging of fresh fruits and vegetables. Periodical inspections are made of container manufacturing plants to assure compliance with the act. A forward step in the administration of the act was the publication of a pamphlet describing the essential features of the new dimensional method of testing containers, and containing schedules of standard specifications. This should make for greater uniformity in manufacturing practices, and possibly effect some reduction in the number of different styles of containers.

TOBACCO INSPECTION

The most significant development in the Bureau's tobacco-inspection service was the decision of the Circuit Court of Appeals in the Fourth Judicial District upholding fully the constitutionality of the Tobacco Inspection Act of 1935. If this decision is upheld by the Supreme Court, it will clear the way for expansion in this service and buttress the right of Congress to enact legislation giving the Secretary of Agriculture broad regulatory powers in the marketing of farm commodities that enter into interstate commerce.

There was a moderate expansion of the tobacco-inspection service notwithstanding the restraining effects of court orders applying to four tobacco markets, and for the first time mandatory inspections passed the 200-million-pound mark. Total mandatory inspections amounted to 208,234,141 pounds, an increase of approximately 42 percent over the preceding year. A portion of the increase was due to larger production in the types inspected. Two auction markets were designated under the act, bringing the total to 25.

One of the major phases of the problem of expanding tobacco inspection and market news services during the past 10 years has been to overcome the inertia of nearly a century of loose-leaf tobacco marketing without the aid of such information for the protection of the producers. The year was notable for the marked interest displayed by tobacco growers, particularly in the burley district of Kentucky and adjoining States. The problem now facing the Bureau is to develop trained personnel to meet increasing demands for service.

WAREHOUSE ACT

There was an increase during the past year in the number of warehousemen, samplers, inspectors, weighers, and graders licensed under the United States Warehouse Act. As of June 30 there were 1,017 licensed warehousemen and 2,486 licensed samplers, inspectors, weighers, and graders. Table 1 shows the increase in the licensing of warehouses for the storage of different commodities.

TABLE 1.—*Storage capacity of licensed warehouses on June 30, 1937 and 1938*

Commodity	June 30, 1937	June 30, 1938	Commodity	June 30, 1937	June 30, 1938
Cotton---bales	6,248,262	6,536,767	Sirup---gallons	26,000	55,000
Grain---bushels	72,586,900	131,186,870	Dried fruit---pounds	11,573,355	3,900,000
Wool---pounds	13,448,420	36,798,420	Canned foods---cases	1,933,230	4,612,730
Tobacco---do	184,366,000	164,481,000	Cold-packed fruit pounds	2,688,000	2,688,000
Nuts---do	14,635	14,635	Seeds---hundredweight	375,700	500,914
Broomcorn---bales	17,750	20,250	Cherries in brine pounds	3,168,000	5,928,000
Dry beans hundredweight	283,000	3,931,000			

A number of terminal elevators at Chicago and other terminal markets were licensed, and there was a fairly substantial increase in the licensing of grain elevators at country points. The increase in the licensing of wool warehouses was due largely to the Government loan program established early last spring. Wool warehousemen in the Texas producing area were licensed for the benefit of growers. The advantages of the Federal Warehouse Act were thus carried directly to the producers.

The increase in the licensing of canned-foods warehouses resulted from the licensing of several plants in western New York, and more particularly from the licensing of several large plants to take care of grapefruit juice production in the Rio Grande Valley. With a record crop of fresh fruit which the market could not absorb at prices satisfactory to the growers there was a substantial increase in the production of grapefruit juice. This juice had to be financed pending

sale in consumer markets. Arrangements were made to store a large part of it in federally licensed warehouses, which resulted in the growers securing money at very low interest rates. Warehouses were licensed to take care of approximately 1,800,000 cases of grapefruit juice alone.

LOWER INSURANCE RATES

The Missouri fire insurance rate-making bureau announced that it would extend a credit in insurance rates of 10 percent to all federally licensed cotton warehouses in Missouri for the storage of cotton. This credit applies both to the warehouses and their equipment and the cotton stored therein.

Effective May 1, 1936, the rate-making bureau for the various surety companies had announced a substantial reduction in rates on bonds written for warehousemen operating under the United States Warehouse Act. This reduction was granted because of the favorable experience the surety companies had with federally licensed warehouses. Effective June 17, 1938, the bureau announced another reduction. The effect of these reductions is shown in table 2.

TABLE 2.—*Insurance rates per thousand dollars on goods stored in federally licensed warehouses*

Amount of principal	Rate prior to May 1, 1936	Rate effective May 1, 1936	Rate effective June 17, 1938
First $10,000	$10	$10	$7.50
Next $15,000	10	5	3.75
Over $25,000	10	3	2.25

Two reductions in bond premium rates in 2 years' time for bonds written under the Federal Warehouse Act clearly suggest that the experience of bonding companies with these risks has been very favorable and the official rate-making bureau so indicated in making the reductions. In contrast to these reductions, rates in connection with bonds for certain other warehousing risks have been increased.

Toward the close of the year large elevator operators in both the St. Louis and Buffalo markets filed applications for licenses under the Warehouse Act.

MARKETING RESEARCH

Changes of far-reaching effect upon farmers have been made in the marketing system in recent years. New ways of preparing and processing foods have been developed, the chain of distribution from farm to home has been shortened by the elimination of some unnecessary links, public agencies have begun to attack the problem of waste and high cost of handling foods in metropolitan markets.

Outstanding has been the increasing use of the motortruck in transporting fresh products direct from farm to market, eliminating rehandling en route, and reducing costs of distribution. Concentration motortruck markets have been developed in some regions, func-

tioning as diversion points where products are assembled and redistributed over wide areas. Large city markets now receive about half their supply of fresh fruits and vegetables by motortruck.

There is increasing public interest in economic problems raised by the growth of large-scale processors and distributors handling agricultural products. Two reports on this subject were published: (1) The marketing of fruits and vegetables by chain stores in the Northeastern States; and (2) the growth of food corporations and the trend of earnings of such corporations. The chain-store study was made in cooperation with the New Jersey College of Agriculture. A third study under way (in cooperation with the University of Wisconsin) deals with the distribution of dairy products in Wisconsin and surrounding States. A start was made in studying, also, the special sales campaigns undertaken by chain stores to move temporary surpluses of perishable agricultural products.

Two important Bureau studies deal with marketing legislation: (1) A survey of Federal and State regulations affecting interstate trade in agricultural products; and (2) the codification of laws affecting the work of the Bureau of Agricultural Economics. A projected report on Federal-State legislation will summarize most of the important laws and regulations on such subjects as transportation, inspection of dairy products and other foods, food taxes, license fees, grades, standards, market requirements, and similar subjects. It will attempt to show in a general way the extent to which legislation in these fields may interfere with the free movement of agricultural products in interstate commerce and indicate the nature of the economic effects of such laws on farmers and consumers.

TERMINAL MARKETS

Much interest has been directed at the Bureau's studies dealing with improved market facilities and improved practices on wholesale markets handling fruits and vegetables and other perishable agricultural commodities. In several cases this interest is being followed by the preparation of detailed plans for reorganizing markets to make them serve the farmer and the general public better.

One completed study dealt with the market for fruits and vegetables in Kansas City. This was made in cooperation with the agricultural colleges of Missouri and Kansas. The conclusions stated in the published report, the Wholesale Fruit and Vegetable Market in Kansas City, pointed out possible improvements that would lead to substantial reduction in costs by eliminating a number of unsatisfactory features in the present market.

The new arrangement worked out at Kansas City should (1) eliminate the necessity of hauling produce from the railroads to the market, thus saving about $150,000 a year in cartage in addition to eliminating the handling and reducing spoilage; (2) provide farmers with an adequate space for selling their produce, eliminating the present interference between farmers and dealers; (3) eliminate all traffic congestion; (4) establish a market that can be satisfactorily regulated and in which it will be possible to get accurate information on receipts; (5) give much better facilities for handling and

protecting produce; and (6) indicate places where expansion can be made to take care of needs for many years to come.

Although the new market is not yet under construction, leases have been signed for 58 of the stores and 250 of the farmers' stalls. Arrangements have been worked out with the railroads for handling of cars, all necessary blueprints and specifications have been drawn up, and financing arrangements have been virtually completed.

WHOLESALE MARKETS

Information was collected on the wholesale fruit and vegetable markets in 40 large cities. The data were summarized and released as Department Circular No. 463 entitled, "Wholesale Markets for Fruits and Vegetables in 40 Cities." This circular has had wide circulation, has been commented upon favorably by many newspapers and trade organizations, and has stimulated interest in the problem of improving efficiency in marketing fruits and vegetables.

In cooperation with the State Department of Agriculture and the State Agricultural College in Georgia, a study was made of the Atlanta market, which not only serves the city of Atlanta, but has become a concentration and distribution point for fruits and vegetables over a wide area. The Bureau has been asked by the Governor of the State to take the responsibility for approving any plans, before they are put into effect for relocating and combining all the existing wholesale markets operating in Atlanta. Work on the new market will go forward when financing plans have been completed.

In connection with a study of the Philadelphia market, on which a report was issued in December 1936, the Bureau has cooperated with the extension service in informing the members of the trade, farmers, and the railroads as to the conclusions of this report. A farm organization has been set up for each county and State in the vicinity of Philadelphia and these have been coordinated into a regional organization whose purpose is to get definite action in improving conditions in Philadelphia. If the suggestions made by the Bureau are carried out, there will be an annual saving of approximately half a million dollars, in cartage alone, in the distribution of fruits and vegetables in Philadelphia.

A study of market needs of the Southeastern States was recently initiated by the Bureau in cooperation with the agricultural colleges of North Carolina, South Carolina, Georgia, Florida, and Alabama. The general purpose is to determine how many markets are needed, where they should be located, how they should be laid out and operated.

MARKETING COSTS

Results of the Bureau's studies in the field of market organization, facilities, and practices have indicated many concrete methods of reducing distribution costs and improved methods of handling. However, in all the work thus far, reliance has been put on the voluntary cooperation of the various interests for effecting the necessary changes.

Studies of the spread between prices received by farmers and prices paid by city consumers for foods have been continued. A report issued in July 1936 summarized price spreads for 58 of the most important food products. This material has been kept up to date by several statistical supplements. These studies have been of interest and value in giving an estimate of the current marketing bill and in indicating general trends in marketing costs. The subject matter was recently used extensively in a report by the International Institute of Agriculture, entitled, "Investigations into the Margin Between Producers' and Consumers' Prices of Certain Foodstuffs."

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